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HISTORICAL NOTES ON POISONING.

GENTLEMEN,—In introducing myself to you for the first time as teacher of Forensic Medicine, I have followed the usual custom of making my first lecture of what may be termed an untechnical character, before proceeding to the more special consideration of the subjects of which our science treats ; and, in doing so, I cannot help expressing the consciousness I feel of the arduous task I shall have before me in endeavouring worthily to fill the chair occupied for so many years and so ably by my distinguished predecessor, Dr. Guy. It is unnecessary, as it would be out of place, for me to eulogise Dr. Guy ; his merits are well known to every one. Dr. Guy has deservedly gained a wide and brilliant reputation as an acknowledged master in State Medicine and Social Science. His work on *Forensic Medicine*—our text-book—is a model of clearness and precision, containing all that is valuable in the science, and enriched in almost every particular with the fruits of Dr. Guy's own able and original research. It is a matter of congratulation to us all that Dr. Guy, though retiring from this chair, still continues in King's College as professor of that most important branch of State Medicine which he is so well qualified to teach—viz., the subject of Hygiene or Public Health. This is daily assuming more and more importance, not only in the eyes of the profession, but of the people generally ; so that it is being gradually detached and constituted into a distinct and separate department, and its principles more widely taught. Nor is this unnecessary, when we consider how much not merely the physical, but the mental and moral well-being of a nation, depend on the knowledge and religious observance of sound hygienic principles, supported by enlightened sanitary legislation. The truth of this is now forcing itself prominently on the minds of our legislators ; and already those who have the credit of being the hardest to move, are

the first to assume as their watchword the now famous parody, *Sanitas sanitatum, omnia sanitas!*

At the commencement of a new study or research, not only is it well to have a clear idea of the aim which it proposes to itself, but it is also advisable to know something of its history and of the influences which have been at work in bringing it to its present condition. Were I, however, to attempt to review the history of Forensic Medicine in all its aspects, I should have a work of no ordinary magnitude before me; for, although Forensic Medicine, as a separate and independent branch, is of comparatively recent growth, in this country at least, yet it is eminently of an eclectic character, deriving its principles from nearly the whole range of the sciences, and reflecting, at the different stages of its development, the condition of the sciences on which it is based.

There are, however, certain subjects which have usually been almost wholly left to be treated of in this course. There are several which might profitably have been illustrated and discussed. Prominent among these is the question of insanity and its medico-legal relations; but I cannot do better than leave this to the able treatment of my distinguished colleague, Dr. Sheppard.

I have chosen to illustrate the development of Forensic Medicine in one of its branches more particularly, by bringing before you the results—possibly more curious than valuable—of an inquiry into the uses of poisons, and the notions that have prevailed at different periods in the history of medicine on the subject of poisoning.* This has always been a matter of curiosity and interest, not more to the medical profession than to people in general; and, on account of the ideas associated with the word poison, it has always proved an attractive theme to writers of fiction.

The earliest use of poisons seems to have been for the purpose of anointing arrows; and the word which is used to denote poison (*τοξικόν*) derives its origin from the word signifying bow (*τόξον*). This custom dates from the most remote antiquity—from the time when men earned their means of subsistence (*βίος*) by the bow (*βίος*). It is almost universally prevalent at the present day among the most primitive and savage tribes; and to this custom we owe our knowledge of one of the most powerful poisons that exists. We find frequent allusions to it in the classical writers.

Homer represents Ulysses as sending to Ephyra for poison where-

* The materials of this essay have been collected from numerous sources. I am greatly indebted to the rich storehouse of facts contained in Marx's *Giftlehre*.

with to anoint his arrows.* The story of Hercules dipping his arrows in the venom of the Lernæan hydra, their deadly effects, and the dreadful accidents which befel Chiron and Philoctetes, are familiar to you all. This story is an indication of the nature of the poison employed ; and we have it on the authority of numerous writers, that snake-poison was frequently used for this purpose. Such was the custom of the ancient Scythians, who likewise mixed the venom with human blood, of itself regarded as a virulent poison, in order to intensity the effects. Even at that early period, they had discovered the fact, though its explanation by the physiological relation between absorption and excretion is only of recent date, that, when taken naturally, the poison was innocuous, and was only fatal when directly introduced into the blood by means of a wound. Pliny makes a curious observation in reference to this practice. He looks upon it as a mark of the depravity of mankind ; for what other animal (he asks) but man poisons his weapons? Ælian, however, is of opinion that man in this respect has only followed the bad example of the wasps ; “for,” says he, “the wasps, when they see a dead snake, alight on it, and dip their stings in its venom”—a curious fact in natural history !

“Όταν (σφηκίς) θεάσωνται νεκράν ἔχιδναν, οἶδ' ἐμπίπτουσι καὶ φαρμάττουσι τὸ κέντρον, ὅθεν μοι δοκοῦσι μαθεῖν καὶ οἱ ἄνθρωποι μάθημα, καὶ τοῦτο οὐκ αγαθόν. Ælian., *Hist. Anim.*, v, 16.

Another very ancient use of poisons was for the purpose of the *ordeal*—a method of judicial investigation which also obtains among many tribes at the present day. With this custom we generally associate the physostigma or ordeal bean of Old Calabar. It is supposed that it was a poison of some kind which constituted the *maar*, or *bitter water*, of which we read in the book of Numbers, and which was used as a judicial test of the honour of wives accused of infidelity by jealous husbands. Harmless to one who was innocent, the effects in the case of a guilty woman were dire enough, causing the belly to swell, and the thigh to rot. It is very doubtful whether this were really a poison. It is more likely that the dreadful invocations of the imposing preliminary ceremony were sufficient to deter any but an innocent woman from draining the contents of the cup.

One of the most curious chapters in the literature of poisoning is that which relates to the use of poisonous substances in the preparation

* Φάρμακον ἀνδροφόνον διζήμενος, ὕφρα οἱ εἶη
Ἴουδς χρεῖσθαι χαλκίηρας.—*Odyss.*, I, 261.

of *philtres*, or love-potions, which were administered under the idea that the affections of the person so practised on would be gained by the individual who employed them. Though the means adopted were often ridiculous enough, and partook more of the character of sorcery and incantation, yet in many cases they were not of the same harmless nature, and the evil effects which frequently resulted assumed such an importance in the eye of the law, that, even at an early period, the administration of such philtres was looked upon in the same light as more serious attempts at poisoning, and was punished as a capital offence. The idea involved in the use of philtres is no doubt, to a certain extent, based on sound physiological principles, and was probably suggested by an attentive observation of the habits of the lower animals; and it still leads to crime, for we yet occasionally meet with cases in which poisonous substances are employed for a similar purpose by vile and deluded miscreants. There is great difficulty in ascertaining the true nature of many of the substances to which the ancients ascribed such virtues, and in estimating how much truth there is in the narratives which have come down to us.

Many learned commentaries have been written on the *dudaim*, or mandrakes, which were held by the Jews of old in high repute as an aphrodisiac, and also as a cure for sterility—an opinion strengthened by the results which apparently followed its use in Rachel's case. Probably the inquiries have been stimulated by the desire to rediscover a remedy which would be of such immense value to obstetricians! The most likely of the many suppositions which have been advanced respecting this plant is, that it belonged to the natural order of the *Atropaceæ*. This opinion would accord best with the descriptions which we read elsewhere of the effects which resulted from the administration of philtres; viz., a kind of frenzied delirium, such as might be produced by some one of the deliriant narcotics belonging to this group. In all probability, it is to some such plant, in its connexion with philtres, that Shakespeare refers when he speaks of

“The insane root
Which takes the reason prisoner.”

Among the Greeks and Romans, Medea was universally regarded as the greatest adept in the art of preparing philtres; and hence the term “*Medeides herbæ*” was used by Horace and Ovid to designate such substances generally. Next in reputation stand the Thessalian women, who may be supposed to have learnt the art from Medea, and who attained great celebrity in all that related to poisoning, sorcery, and in-

cantation. Hence "Thessalian arts" and "Thessalian poisons" are frequently employed by the classical writers as generic terms, applicable to all forms of poisoning.*

Philtres are described by Ovid and others as affecting the reason and causing a phrenzy which sometimes terminated fatally.

"Philtra nocent animis, vimque furoris habent."

Lucretius, the great philosophical poet of the Ciceronian era, is said to have written his poem *On the Nature of Things* in the intervals of delirium occasioned by a philtre or love-potion secretly administered to him by his wife or mistress, Lucilia; and Lucullus, the Roman general, is stated to have died in a state of delirium from a similar cause. The laws of the Twelve Tables contained special provisions against this form of poisoning. It was included under the head of sorcery, and was punished as a capital offence: "*Qui malum carmen incantat, malum venenum faxit dicitur, parricida esto.*" (Table VII.)

Though it would appear, therefore, both from the accounts we have received and from the necessity of special enactments against it, that the administration of philtres often led to results far more serious than were contemplated by those who used them, we can hardly regard otherwise than as a subject of amusement the credulity which prevailed even up to a very late period with respect to many substances held in high repute, and supposed to be possessed of marvellous properties. Many of these substances would hardly deserve the name of poisons, or even noxious substances, as we understand them; but yet in most countries their administration was forbidden, as coming under the head of sorcery and witchcraft.

The idea which guided the selection of some of the substances regarded as stimulants of love we might understand, though it would be rather difficult to do so in the case of others. One of the most celebrated agents of this sort is the substance called *hippomane*, described by some as a kind of *vernix caseosa* found on the forehead of a newly born foal; by others, as of a much more disgusting nature ("*virus destillans ab inguine equæ coitum maris appetentis*"). Animals of various kinds, and parts of certain animals, such as the testicles, the hair from the tip of a wolf's tail, a bone from the left side of a toad devoured by ants, ribs of snakes, etc., were all used as powerful ingredients in love-

* "*Hic magicos affert cantus, hic Thessala vendit
Philtra, quibus valeant mentem vexare maritis.*"—JUV.
"*Quæ saga, quis te solvere Thessalis
Magus venenis, quis poterit Deus?*"—HORACE.

cups. Menstrual blood, and particularly that of a red-haired woman, was not only greatly esteemed as a philtre, but was regarded also as a most powerful poison. It is a curious circumstance, and one which we find great difficulty in accounting for, that not merely human blood, but the blood of animals in general, was universally looked upon as a poison in ancient times; and that this belief should have been shared by medical writers up to a comparatively recent period. We read in Herodotus that Psammenitus, King of Egypt, was put to death by Cambyses by being made to drink bullock's blood. Such also, according to the popular belief, was the mode in which Themistocles committed suicide. Unwilling to fight against his own countrymen, he drank a goblet of the blood of a sacrificial ox, and expired almost immediately. Even up to the time of Blumenbach, in the middle of the last century, blood was still considered to be poisonous, and it was treated of as such in many learned works on poisons and legal medicine. Zacutus Lusitanus, writing in 1657, relates many instances of dreadful effects resulting from the drinking of blood. It is worth while quoting one of these. A student, animated by the spirit of practical joking, gave to another, instead of wine, two ounces of the blood of a red-haired woman mixed with sugar. The victim of this joke did not experience any immediate evil effects, but after a day or two he passed into a raving state, and became ultimately a confirmed idiot.* One is tempted to remark that the individual in question cannot at best have been far removed from this state, if he could mistake for wine the nauseous mixture offered to him. And, in the opinion of Andreas Cæsalpinus, who nearly anticipated Harvey in the discovery of the circulation, it is to human blood that we owe the origin of one of the most virulent contagious diseases. He traces the origin of syphilis to the fact that the Spaniards, in abandoning the small town of Somma, at the foot of Mount Vesuvius, mixed all the wine of the place with the blood of the patients in the hospital of St. Lazarus.

Blumenbach, in his lectures, recommended his students to make experiments in order to clear up all doubts as to the poisonous qualities of blood. One student experimented on himself, and drank seven ounces of warm bullock's blood without experiencing any evil effects. Another preferred to experiment on a dog, which likewise survived the experiment.

Returning from this digression on blood once more to the subject of

* "Fatuus in eternum remansit, quum nullo remediorum genere posset hæc stultitia emendari."—Quoted by Marx, *Giftleh.*, ii, 274.

philtres, we find that the belief in them was strong even as late as the time of Van Helmont, in the middle of the seventeenth century. Van Helmont himself was fully persuaded of their efficacy, and perhaps the most remarkable statement in regard to them occurs in one of his writings. Here is a translation of it: "I know a plant of common occurrence, which, if you rub and cherish in the hand till it becomes warm, and then take the hand of another and hold it till it also becomes warm, that person will forthwith be stimulated with love for you, and continue so for several days."

A plant is mentioned by Theophrastus, to which even more powerful effects were ascribed, but which need not be more particularly specified.

There were not a few, however, even in ancient times, who were sceptical as to philtres. Ovid, who speaks so much of them, had his doubts; and, in a letter to a young lady, he recommends, as far the most preferable prescription, "*ut ameris, amabilis esto.*"

From these and similar truths, the influence of philtres gradually ceased to be believed in, and disappeared from medical literature by the middle of the eighteenth century. Closely connected with the practice of brewing love-drinks was the still more pernicious and dangerous one of dealing in abortifacients. What we now call the crime of abortion was not in early times regarded as such. False political and social doctrines had much to do with the prevalence of the practice before the dawn of Christianity, and it was not till the time of the early Christian emperors that legislative measures were enacted to check it. It was the custom in early ages not to regard a newly born child as a human being, whose life was worthy of preservation, till it had been taken up by the father and placed in the mother's bosom. It was at the option of the father whether the child should be exposed or reared. Infanticide, therefore, was looked upon as a regular social institution. Of much less import did it seem to kill a child in its mother's womb, or to cause its expulsion at a time when its death would be certain. The politics of Plato and Aristotle did much to encourage the practice; for they held, as do the followers of Malthus at the present day, that the number of children born every year in a State should be regulated and restricted; and therefore they recommended abortion as a means of checking over-population. This licence was, of course, a premium on immorality; and the evil reached its highest extent in the days of the Roman empire, as the pictures drawn by Juvenal sufficiently show. The morals of the Roman matrons of that time were such as to lead them to resort to the prac-

tice on the most frivolous motives. They had an abhorrence of everything which they thought might spoil their beauty or destroy their symmetry of form. They looked upon a pregnant womb as an "*indecens onus*", and had recourse to abortifacients "*ne rugis ventrem Lucina notaret*". It is accounted by Seneca as one of the virtues of his mother, Helvia, that she had never been guilty of this debasing vice.* The agents who pandered to the licentiousness and vice of this period were numerous, and well skilled in the knowledge of almost all the mechanical and oxytotic means of procuring abortion with which we are at the present day acquainted. Then, as now, the attempts were frequently followed by fatal consequences.†

Though the practice of abortion was not usually considered criminal, and at the worst only visited by moral censure, there were occasions on which it was held as felony. Cicero relates a case where a woman was condemned to death for having, in collusion with the heirs presumptive, practised abortion on herself, and thus defrauded her husband of children.‡

It is, however, with the use of poisons for the express purpose of taking away life, that we more particularly associate the term poisoning; and it is on this that so much has been written, and, at the same time, so much has been fabled. It was but natural that men should turn to some account the knowledge of the deadly effects of many substances with which they could not help becoming acquainted, and to employ them for ridding themselves of objects of jealousy, hate, envy, or revenge, especially as this could so often be done secretly and securely; and it was also natural that the same means should recommend themselves as a rapid and pleasant form of suicide. Poisons were also employed for state purposes, as a means of execution. The most celebrated instance of this is the *κώλειον* or state poison of the Athenians,

* "Nunquam more aliarum quibus omnis commendatio ex formâ petitur, tumescens uterum abseondisti, quasi indecens onus, nec intra viscera tua conceptas spes liberorum elisisti."—Seneca, *Consol. ad Helv. Mat.*, c. 16.

† "At teneræ faciunt, sed non impune, puellæ;
Sæpe suos utero quæ necat ipsa perit,
Ipsa perit ferturque toro resoluta capillis,
Et clamant, merito, qui modo eunque vident."
OVID, *Lib. Amor.*, xiv, 37-40.

‡ "Memoriâ teneo, Milesiam quandam mulierem, eum essem in Asiâ, quod ab hæredibus secundis acceptâ pecuniâ partum sibi ipsa medicamentis abegisset, rei capitalis esse damnatam; neque injuriâ; quæ spem parentis, memoriâ nominis, subsidium generis, hæredem familiæ, designatum reipublicæ civem sustulisset."
—CIC., *p. Cluentio Avito*.

which has derived its chief interest in connexion with the death of Socrates. The description given by Plato of its mode of action has given rise to considerable discussion as to its nature. Apart from its name, which would be no satisfactory guide, it has been generally identified with the *conium maculatum* or hemlock. Some have doubted whether it were only a simple infusion of hemlock, and think that it must have had other ingredients. Whatever it was, it does not appear to have been very powerful or rapid in its action; for we are told that mental excitement was apt greatly to interfere with its effect, and sometimes more than a single dose was necessary. The carrying out of the sentence of capital punishment by means of poison was not, however, confined to the Athenians, and we have numerous instances in other countries where the same method was adopted. It was allowed as a special mark of favour in some cases; and in later days, when scientific men were eager to study the effects of poisons in an exact manner, it was permitted by the State, and criminals were quite willing to submit themselves to be experimented on with poisons, rather than undergo the horrors of a public execution. The mode of execution by poison was strongly advocated by many medical writers of the last century. Celsus, a German writer, thought it was a mark of very great simplicity and stupidity in his countrymen not to have adopted it; and Gruner, in a very eloquent and feeling manner, extols the comfort and tranquillity of being quietly put out of the way, without becoming, under the hands of the executioner, a horrible and bloody spectacle in the eyes of a cruel mob. A curious incident in reference to this mode of execution is quoted by Pierre Fabre from the *History of the Apostles*, in which it is related that the Apostle John was present at the execution by poison of two criminals in the public forum at Ephesus.*

It was a strange custom that prevailed among the inhabitants of the island of Ceos. The old men, when they found that they were no longer of service to the State, and felt themselves a burden to their children, assembled together at a banquet of death, and, with their heads crowned with chaplets, joyfully drank a happy despatch (*εὐλογον εξαγωγήν*) in cups of hemlock. A more sensible custom obtained among the ancient inhabitants of Marseilles—one which might with advantage be revived at the present day, if only those most interested

* "Perrexit Aristodemus ad proconsulem et petiit ab eo duos viros de quibus debebat ultimum supplicium sumi; quos cum statuisset in foro coram omni populo, aspiciente apostolo, fecit eos bibere venenum, qui mox ut biberunt spiritum exhalaverunt."

would subscribe to its provisions. Valerius Maximus relates that the inhabitants of that town kept a public poison, intended for the special use of those who wished to commit suicide. Before, however, the applicant was supplied, he had to go before a jury of six hundred—the Timarchi—and satisfy them that he was miserable enough to be allowed to put an end to his troubles by poison.

The kings of Persia were also in possession of a poison which caused a speedy and painless death, which they carefully preserved for their own special use against an evil day.*

In times of trouble, and in ages of barbarous cruelty, men who took an important part in public affairs, and thus exposed themselves to the machinations of numerous enemies, often carried on their persons a sufficient quantity of some deadly poison, to which they resorted as a means of escape from tortures worse than death. I might cite numerous instances of this practice in various ages, but one or two well known examples will suffice. I have already alluded to the death of Themistocles, which was popularly set down to the effects of blood, but which, in all probability, was due to some poison which he carried on his person. Demosthenes, when all hopes of escape from his enemies, the Macedonians, were gone, committed suicide by taking a dose of poison, which he is said always to have carried about with him in a quill. The story of Hannibal is likewise familiar to you all. After being hunted about from place to place by his relentless enemies, the Romans, he was obliged to sacrifice himself, in order to save his protector, Prusias. He is said to have carried the means of death in a ring which he constantly wore. Though we can admit the possibility of this, we have no means of ascertaining the nature of the poison, nor the method in which it was introduced into the system. Perhaps the most celebrated instance is the case of Mithridates, King of Pontus, who was, according to accounts, quite an adept in toxicology, and left behind him a work on that subject; which, however, has unfortunately been lost. Mithridates, like some oriental monarchs of the present day, lived in constant fear of being poisoned. To guard against this, he invented an antidote, which became so famous that the name Mithridatium was applied to antidotes generally. Of this, however, we shall have to speak by and bye. By the use of this antidote, but more probably by the habitual use, in small doses, of the poison which he feared, he is said to have rendered his system unsusceptible

* *κακῶν ἀνιάτων ἀντιπαλόν τε καὶ ἀμυντήριον εἰ ἀνάγκη καταλάβοι.*

to the action of poison ; so that, when he came to require its aid, it proved faithless to him, and he was obliged to have recourse to his sword. The story of Mithridates would seem to show that it was one poison only, or at most very few, which were known, or at least had recourse to, by poisoners of that time.

It is, however, to the secret crime of poisoning that we attach the chief interest, both in a popular and medico-legal sense. It is often difficult to arrive at the real truth in many of the narrated accounts, surrounded as it is, and mixed up with, so much that is evidently mythical. It is remarkable that this crime should have prevailed in some countries to a much greater extent than in others, and that so many women should have acquired such a notoriety in this art. A great many of the accounts, however, which we have received regarding the proficiency which so many women are said to have attained, especially in the art of preparing slow and secret poisons, must be estimated at the same value as the similar tales of sorcery and witchcraft. As women were supposed to be specially addicted to these black arts, so they got a similar amount of credit for the art of secret poisoning ; and, in ancient statutes, the word which signified witch was also used to signify poisoner (*φαρμακίς*, *venefica*). Most of the old statutes regarded sorcery as a *veneficium*, and punished it with the same penalties. In the laws of the Twelve Tables already alluded to, persons who administered poisons, or uttered an incantation against the life of another, were punished with death ; and, in the Institutes of Justinian, capital punishment was inflicted on those who by odious arts, whether by poison or by "magical whispers", took away the life of another. "*Et venefici capite damnantur, qui artibus odiosis, tam venenis quam susurris magicis homines occiderint.*"

The crime of poisoning does not appear to have been common among the ancient Egyptians or Jews, judging from the absence of any special legislation against it. The existence and character of the laws against this crime afford a fair indication of its frequency, for in ancient times it was those who made the laws that had often the most reason to fear. The crime was very common among the Persians. This we have on the direct testimony of Xenophon ; and certainly the punishment was such as might be expected to deter evil-doers. Those who were found guilty of poisoning were laid with their head on a flat stone, and then beaten about the head and face with another stone till the skull was smashed in pieces. And, judging from the story of Statira, the Persians must have arrived at considerable dexterity in the art of preparing and

administering secret poisons. It is related that Parysatis, wife of Darius, wishing to get rid of Statira, the wife of Artaxerxes, smeared with poison one side of the knife with which she carved a fowl. She sent the poisoned side to Statira, while she ate the other herself; so that Statira died apparently from causes which left no room for suspicion.

The crime was not common among the Greeks. When it did occur, the malefactors were condemned to death by the Areopagus. The Romans are said to have learnt the art of poisoning from the Persians. In this they soon excelled their masters, and indeed almost every other nation.

The first great outbreak of the crime is reported by Livy, which occurred about the year B.C. 330. At this period, the morals of the upper classes of society had become so scandalous, that the more virtuous and honourable members of the Senate set themselves to stem the torrent of vice. Soon afterwards, the frequent occurrence of sudden death among the illustrious senators filled the city with alarm, and led to an investigation. By the evidence of a slave, who had been privy to their councils, a secret society of patrician women was discovered, whose avowed object was to get rid of the obnoxious senators by means of poison. They vehemently denied the charge; asserting that their preparations, which were found, were only medicines for the poor. As a test, they were compelled to drink their medicines, which proved fatal to them all. Their accomplices, to the number of one hundred and seventy, were thrown into prison, where they perished. Two hundred years after this occurrence, secret poisoning again became extremely frequent, and led to the passing of the famous law "*de veneficiis et sicariis*" by the dictator L. Cornelius Sulla. This law is still preserved in the Institutes of Justinian. By it the crime of poisoning is held as more heinous than any other form of homicide, and was punished with corresponding severity. ("*Plus est hominem extinguere veneno quam occidere gladio.*") Under the Roman emperors, particularly about the time of Nero, poisoning was so frightfully common, that few of any note were safe. The chief instrument in the perpetration of the numerous villanies which characterised the life and times of Nero was the famous Locusta. So necessary did this woman appear to the success of the schemes of Nero, that she was maintained by him as an "*instrumentum regni*", and had pupils entrusted to her, that the valuable art should not become lost. It was Locusta who prepared the poison by which Agrippina despatched her

husband, the Emperor Claudius, and by which, among others, Nero despatched his brother Britannicus. In the writings of Tacitus, Suetonius, and other writers of that epoch, there is much curious and interesting information regarding the experiments of Locusta, the nature of the poisons used, and what were considered at that time as the symptoms and signs of their administration. The poisons were chiefly derived from the vegetable and animal world, mineral poisons not having become known till a later period. Aconite seems to have been frequently employed. Ovid says :

“Lurida terribiles miscent aconita novercæ.”

And Pontia, celebrated for poisoning both her children, and subsequently committing suicide, is represented as saying,

“Confiteor puerisque meis aconita paravi.”

The epitaph of Pontia is still preserved.*

It is also probable that aconite or some equally powerful poison formed the really active ingredient in many of the compounds which were by popular rumour supposed to owe their deadliness to substances which we now know to be wholly or almost wholly inactive. It was the popular belief that the poison which carried off Claudius was prepared from toads, and administered to him in a dish of mushrooms. We could more readily credit the account, if it had been stated that he was poisoned by toad-stools, the poisonous properties of which were well known. It has, however, long been a vulgar belief that toads are poisonous—an idea probably originating from their repulsive appearance, and from the fact that they do secrete an acrid fluid in their cutaneous glands. Modern research has not, however, confirmed this notion; and there is reason to believe that as many toads as frogs are eaten by epicures. That toads are poisonous, will in all likelihood continue to be believed as long as Shakespeare is read.

“Marked by the destinies to be avoided,
As venom toads or lizards' dreadful stings.”

And again :

“Toad, that under coldest stone
Days and nights has thirty-one
Sweltered venom sleeping got,
Boil thou first i' the charmed pot.”

* “Pontia Titi Pontii filia
Heic sita sum
Quæ duobus natis a me
Veneno consumptis
Avaritiæ opus misere mihi
Mortem conscivi.
Tu quisquis es qui heic transis,
Sî pius es, a me oculos averte.”

And many passages to a similar effect might be quoted.

Probably the same method of reasoning led to the belief in the poisonous nature of the *aplysia* or sea-hare. Further than having a disgusting appearance and fœtid odour, and having the power of emitting a coloured liquid when irritated, it does not seem to possess any specially poisonous qualities, though the subject might perhaps be worthy of further investigation. Nero is said to have frequently used this as a poison, and it is with this that Domitian is said to have poisoned his brother Titus.*

The symptoms and signs which were accepted at that date as evidence of poisoning are interesting in a medico-legal point of view. They were, as may be supposed, sufficiently crude to inspire us with considerable doubt as to the reliability of many of the narrated cases of poisoning. That there were certain *post mortem* appearances which were generally considered as evidences of death by poison, appears from the writings of Cicero, Tacitus, and others. Cicero speaks of "*ea quæ solent esse indicia et vestigia veneni*"; and in the account given by Suetonius of the death of Germanicus, who was poisoned by Piso, at the instigation of Tiberius, we find them enumerated as livid spots on the face and body, foam at the mouth, and the fact that the heart remained unconsumed when the rest of the body was burnt. It was also believed that worms did not become generated in the bodies of persons who died of poison. There were no judicial *post mortem* examinations; and, in such inspections as were made, medical men were not specially employed. The body was simply exposed to the people, who were supposed to be able to form a sufficiently accurate judgment for themselves as to the cause of death. It is related by Dion Cassius that Nero, fearing lest his murder of Britannicus might be discovered, concealed the lividity of the face by a coating of chalk; but that a shower of rain washed away the chalk, and displayed to the people the evidences of his fratricidal crime. It was not till the time of the Emperor Justinian, about the middle of the sixth century, that the aid of medical men was specially required in the judicial investigation of the questions which now fall to the province of the medical jurist. Even then, little room was left for the expression of an independent opinion,

* "Titum autem cùm post mortem patris annos duos regnasset, a marino lepore interfectum dicunt. Is autem piscis humores quosdam occultos habet mortiferos supra omnia venena quæ mari terræ nascuntur. Et Neronem hunc ipsum piscem epulis miscuisse quandoque tradunt adversus homines sibi inimicissimos. Domitius quoque hoc eodem contra Titum fratrem usus fuisse putatur."—*Philost. Apollon. Vit.* iv, 14, quoted by Beckmann, *Beitr. zur Gesch. d. Erfind.*

as the cases were for the most part decided on the authority of the learned Hippocrates.

The provisions of the Justinian code were incorporated in the capitularies of Charlemagne, and the foundations of State Medicine were laid. They were not yet, however, destined to be built upon. At the breaking up of the empire, there was a lapse into darkness worse than the first, and for many long years all progress was in a backward direction. What little had been gained in medicine, was carried off to Arabia or shut up in the monasteries. Much more might have been done by the monks, but the study of medicine was proscribed to them by several of the oecumenical councils of the twelfth century, as causing too great distraction from their religious duties. Superstition, bred of ignorance, was rampant, and led to results often far more disastrous than the worst of crimes. The art of poisoning had not been lost, however, as we have sufficient evidence to prove, though credulity and superstition often saw it where it did not really exist. The history of the Italian republics in the middle ages is replete with instances of poisoning and assassination.

Every one is acquainted with the history of the Borgias, and the long catalogue of crimes, in which poisoning figured conspicuously, which have been laid at the door of Pope Alexander VI and his son Cæsar Borgia. Perhaps many of these have been considerably embellished by tradition, and many of the diabolical artifices to which they are said to have resorted may have only an apocryphal existence. Cæsar Borgia is said to have worn a ring containing a concealed point tipped with deadly poison; and a particularly cordial shake of the hand, under the guise of the warmest friendship, was, to the person so highly favoured, the grasp of death. That there is nothing inherently impossible in such an artifice, what we know at the present day regarding poisons would give us many reasons to believe, however much we may doubt the credibility of the narratives. At a banquet to which the Pope and his son had invited certain cardinals whom they intended to despatch by means of poisoned wine, the butler, either wilfully or by mistake, changed the flasks, so that the Pope and his son got the poison intended for their guests. Pope Alexander died; but Cæsar Borgia recovered, and escaped for a time the death he so richly deserved.

In later times, Philip the Second of Spain was universally feared on account of the numerous villainies which he perpetrated by means of a poison which he called his "*requiescat in pace.*" Pope Sixtus V,

who ultimately fell a victim to this, used to say to the Spanish ambassador that Philip's "*requiescat in pace*" was the only thing he feared.

In the middle ages, the crime of secret poisoning was not more prevalent among the laity than among the clergy; and not unfrequently, where one would least expect it, the elements of the eucharist were the media by which it was administered. Pope Victor II, Christopher I, King of Denmark, and Henry VII, Emperor of Germany, are all reported to have perished in this way. It is related that Henry VII, on his return from Italy, where he had made many enemies both in Church and State, stopped at the small town of Buonconventis to celebrate the festival of Easter. After receiving the sacrament, he fell ill, and died in horrible sufferings, exclaiming, "*Calicem vite dedisti mihi in mortem.*"

The right of sanctuary (*jus asyli*), which was strenuously maintained by the Church, did much to shelter criminals both clerical and lay, and to render null and void the statutes enacted to check the frightful frequency of poisoning. Henry II of England was one of the first to break through this privilege, and to bring to justice criminals of whatever class and from whatever place they had fled to for refuge. Burning alive and other cruel modes of death were the penalty of those convicted of this crime. While, therefore, real cases of poisoning were common and frequent, falsely imputed ones were not less so, and were productive of even greater evils.

The open neglect of all hygienic measures, the deluded reliance on absurd charms as prophylactic against all kinds of disease, and the mistaken ideas of mortifying the flesh inculcated by the clergy, had much to do with the origination and propagation of those deadly epidemics which decimated the nations of the middle ages. The people, ignorant alike and superstitious, in most cases attributed these to wilful poisoning of the wells; and the occurrence of an epidemic was the signal for a murderous attack on the unfortunate Jews, who were generally accused of this crime. Many thousands of them were thus massacred. Even as late as 1831, when cholera broke out at St. Petersburg, a similar idea of poisoning the wells was entertained by the people. The following anecdote will illustrate the kind of notions which were entertained in olden times. In the year 1322, a number of lepers were burnt alive for having, at the instigation of the Jews, it was said, poisoned the wells. This they effected in the following remarkable manner. They took some of their leprous blood and urine, and

mixed them into a paste with toads and poisonous herbs. This paste they cut into small cakes, which they sank with stones to the bottom of the wells !

A profound faith in universal antidotes against poison was characteristic of this age of the marvellous. This idea, however, did not originate with them, for it forms no inconsiderable part of the works of Nicander, Dioscorides, Galen, and others ; and it continued to be spoken and treated of in many learned works up to a comparatively recent period in the history of medicine. One of the most celebrated of the ancient antidotes was that invented by Mithridates, and which was named after him. These *Mithridatia* and *Theriaca*, as they were termed, were variously modified at different periods. They consisted for the most part of an immense number of vegetable extracts and resins ; and many works were written, specially devoted to the exact description and modes of compounding the various ingredients of these highly prized alexipharmics. So late as the middle of the last century, Heberden wrote a special treatise showing their uselessness, and advocating their banishment from the pharmacopœias. More prized in the middle ages were the *Bezoar stones*, first introduced by the Arabian physicians. So much were they valued, that they sold for ten times their weight in gold. These wonderful stones, of which there were two varieties—the oriental and the occidental—were nothing but the biliary calculi of different species of antelopes, goats, and camels. Amulets and charms of precious stones and coral, which blushed or turned pale when poison approached them ; rings that became too hot to be worn ; cups that cracked when poison was poured into them ; and such like, were equally relied on. Many other agents were employed, based on the idea of curing like by like, or on the equally scientific doctrine of Signatures, which saw, in whatever resembled the noxious substance in form or appearance, the proper antidote against it.*

The promulgation of the “*Constitutio Criminalis Carolina*” in 1533 by the Emperor Charles the Fifth, was the dawn of a new era, and marks the commencement of the science of forensic medicine. The relations of medicine to jurisprudence were distinctly established, and medico-legal investigation by competent men was rendered imperative in

* “*Die Signatur ist in der Philosophia und Medicin das höchste Fundament. Die Syderica oder gross Drachenwurtz hat in einem jeden Blatt die Gestalt eines Schlangens ; dannenhero wir dann durch eine magische Anzeigung werden gestärckt dass ihre Brühe wider die Stich und Bisse der Schlangen eins der allerkräftigsten mittel sey.*”—Crollius, quoted by Marx, *Giftlehre*, i, 25.

the decision of numerous criminal and civil cases affecting the life and property of individuals. Numerous statutes were passed by various states, regulating and restricting the possession and sale of poisons, and stringent enactments were made against the poisonous adulteration of food and drink.

The use of poisons as medicinal remedies was also strongly condemned by many writers and teachers. Antimony was especially prohibited by the Universities of Paris and Heidelberg, and candidates for the degree of Doctor of Medicine were, about the middle of the sixteenth century, required to swear that they would never employ this substance in the treatment of disease. These regulations remained in force for many years. They were ostensibly for the purpose of preventing poisoning, but they were chiefly directed against the followers of Paracelsus, who used the mineral poisons largely as remedies. The attention of medical men now became directed to the scientific investigation of the nature and action of poisons, and of the means of detecting and checking their employment. Numerous memoirs on poisons and on subjects of legal medicine were written by distinguished men; and works specially treating of forensic medicine were written by Fortunatus Fidelis (1598), Paul Zacchias (about 1630), and others whom we regard as the fathers of the science. The foundation of a new physiology, chemistry, and allied sciences, led to a gradual emancipation from many absurd ideas regarding poisons. Numerous exact experiments were made on the lower animals, and also on condemned criminals. A sense of humanity gradually put a stop to this latter mode of experimentation; but we, who have derived much valuable knowledge, though often obscured by absurd theories, from these experimenters, must not be too ready to find fault with them. In connexion with this mode of experimentation, a name occurs which we commonly associate with a different employment; namely, that of Sir Christopher Wren.

Notwithstanding the general tendency to shake off mere tradition and subject everything to the canons of inductive research, yet many strange things retained their place in the works on forensic medicine in the seventeenth and eighteenth centuries. It was a very common belief, and accepted on the most slender evidence, that there were poisons in use so subtle that they might be conveyed in a letter which would prove fatal to the reader, or inhaled in the fragrance of a bouquet. We might to some extent credit these accounts, if we had grounds for supposing that the poisoners of old were skilful enough to

isolate the zymotic poisons—the only poisons we know which can be carried in such a way. Prince Eugene is said to have received a poisoned letter, which, however, he suspected and immediately threw from him. To ascertain whether his suspicions were well founded, the letter was given to a dog, which was moreover fortified by an antidote. Notwithstanding this, the dog died. Marx, who relates the story, naively asks “Was not the dog poisoned by the antidote?” We might believe in poisoned gloves, but hardly in poisoned boots, poisoned saddles, and the like.

Pope Clement VIII was said to have been killed by the fumes of a poisoned candle which was placed in his bedroom. Those who attributed his death to this cause, forgot, or did not know, that at the same time a brazier of burning charcoal was likewise placed in his Holiness’ apartment.

A belief in the existence of slow and secret poisons which could be prepared with such skill, and the dose calculated to such a degree of precision as to cause death at any given period, according to the will of the poisoner, was more prevalent, and has not altogether passed away at the present day. It has descended from very ancient times. Theophrastus speaks of such a poison prepared from aconite which would produce its effects after two, three, or six months, or even after one or two years. The Carthaginians were said to have administered such a poison to Regulus, so that, whether he returned from his mission to Rome or not, he might not altogether escape. And it is related by Plutarch, that one of the Philips of Macedon caused such a poison to be administered to Aratus, King of Sicyon. This is said to have produced a gradual wasting of the whole body, accompanied by hæmoptysis. On one occasion, when he spat blood, Aratus, who believed he had been poisoned, exclaimed, “This is a mark of the king’s friendship!”

In more modern times the idea was founded on apparently better grounds, viz., on the effects attributed to the celebrated *Aqua Tophana*. This poison derived its name from Tophana, a woman who resided at Naples in the latter part of the sixteenth century. It was sold in phials, which, in order to escape the scrutiny of the Government officials, were labelled “manna of St. Nicholas,” purporting to be an oily liquid of reputed supernatural virtues which was said to flow from underneath the tomb of St. Nicholas of Bari. The name “manna of St. Nicholas” is familiar to all readers of *Kenilworth*, though its mention there is somewhat of an anachronism. From four to six drops of this aqua or

acquetta were said to be a fatal dose, and it was asserted that the dose could be so proportioned as to operate fatally at any fixed period after its administration. Tophana, who was convicted in 1707, and subsequently strangled by the orders of Charles the Sixth, confessed to having been the means of destroying six hundred lives. The wonderful effects ascribed to this poison led to many attempts to discover its composition. It was said to be a clear liquid, tasteless, odourless, and easily miscible in all kinds of food and drink. Halle, a writer on poisons, who was gifted with a marvellous amount of credulity, thought that it was a preparation from the foam of men tortured to death; and remarks, that if Italy could have been the parent of such wickedness, "then truly a seed of the forbidden fruit must have fallen in this garden of the devil!" The most probable of the many suppositions advanced regarding the composition of the aqua Tophana is that it was an arsenical solution. In support of this, Hoffman quotes a letter from Gasparelli, physician to the Emperor Charles, in which he asserts that he was informed by the emperor himself (to whom Tophana confessed the secret of her preparation) that it was a solution of arsenic in an infusion of *cymbalaria* or toad-flax. The Abbé Gagliani and Ozanam assert that at least some of the preparations called aqua Tophana contained opium and cantharides. This, however, is not likely, if the aqua Tophana were really tasteless and odourless, as it was generally said to be. The accounts we have received of the effects which followed the administration of this poison would agree, in so far as they are trustworthy, with the symptoms of arsenical poisoning. The most likely explanation of the slow and subtle action ascribed to it, is that it was due to chronic poisoning caused by frequent administration. A similar explanation must be given of the almost equally celebrated *aqua mirabilis* of the Marchioness of Brinvilliers and the *poudres de succession* of La Voisin and Le Vigoureux.

The aqua mirabilis of the Marchioness of Brinvilliers was probably of a similar composition to the aqua Tophana. The career of this woman is one of the most remarkable in the history of poisoning. She carried on an intrigue with a young officer called St. Croix, which created such scandal that the father of the marchioness caused St. Croix to be incarcerated in the Bastille. There he fell in with an Italian called Exili, from whom he learnt the art of secret poisoning. St. Croix, when liberated, instructed the marchioness in the art which she afterwards practised with so little scruple. She is said to have assumed the character of a sister of mercy, in order to try her nefarious mix-

tures on the unfortunate patients in the Hôtel Dieu. She subsequently made away with her father and brother. After a long career of crime, she was beheaded and burnt at Paris in 1676. The symptoms recorded in the case of her father and brother would confirm the opinion that arsenic was the chief constituent of her poisonous compounds. Closely connected with the Marchioness of Brinvilliers were two infamous women, named La Voisin and Le Vigoureux, the former of whom was a midwife in Paris. These women attained a great reputation as fortune-tellers, and were consulted by many eminent personages of both sexes regarding the probable time of death of their husbands or wives, or other obnoxious individuals. Their predictions were often marvellously verified, and no wonder, seeing that they had the fates in their own hand, and drove a wholesale trade in poisons. They were ultimately condemned and burnt alive by order of the Chambre de Poison or Chambre ardente instituted by Louis XIV. The poisons they made use of were called *poudres de succession*. To these, also, a slow and secret action was ascribed. Lead was said to form their principal constituent. From what we know, however, regarding acute and chronic lead-poisoning, we should be inclined to attribute the fatal effects to some more active agent, or possibly to the means employed to cure them. Most of the accounts of slow and secret poisoning are therefore manifestly fabulous, or are susceptible of such an explanation as given above. With the exception of the zymotic poisons and the hydrophobia-virus, which may long lie dormant in the system before producing their effects, but which we have no reason to believe were ever isolated or employed by the most skilled poisoners of old, we have nothing to warrant the assumption that such slow poisons ever existed except in the minds of the credulous. The existence, however, and frequent use of such poisons even at the present day, is maintained by a recent writer in a medical journal. He states that the Thugs of India possess and employ a slow poison called *tophayne*. And that poisons may be conveyed in letters which will prove fatal to the reader is considered probable, from the recent sudden death of two individuals after reading anonymous letters—one of these cases occurring in Canada, and the other, that of General Cugia, at the last Carnival in Rome.

Unless better evidence be brought forward than examples like these, we must regard conclusions from such data as manifestly worthless. Thanks to the knowledge which we now possess of the natural history of disease, and to the perfection of the means of detecting poisoning,

together with the restrictions that are put on the sale of poisons, the crime is becoming more and more rare, and cannot, even in the most skilful hands, long remain undetected. Fortunately, those who have it most in their power are those who have been least guilty of it, with some few noted and universally execrated exceptions. Medical men have been in general true to their Hippocratic oath, and are ready to echo the sentiments of the surgeon in the army of Napoleon, who, when requested to poison five hundred unfortunate invalid soldiers whom it was inconvenient to take with the army or to leave behind, indignantly exclaimed, "Neither my principles nor the dignity of my profession allow me to become an assassin!"

